

Acute gastric dilatation after trauma

Acute gastric dilatation is a condition which, if not diagnosed and therefore not treated, carries a high mortality.¹ While it usually complicates abdominal operations it has been reported after minor operations.² The widespread use of nasogastric suction after abdominal operations has led to a considerable fall in its incidence in recent years.²⁻⁴ Many young surgeons will therefore have no experience of this condition. We report here two unusual cases of acute gastric dilatation, both of which followed trauma to the upper abdomen.

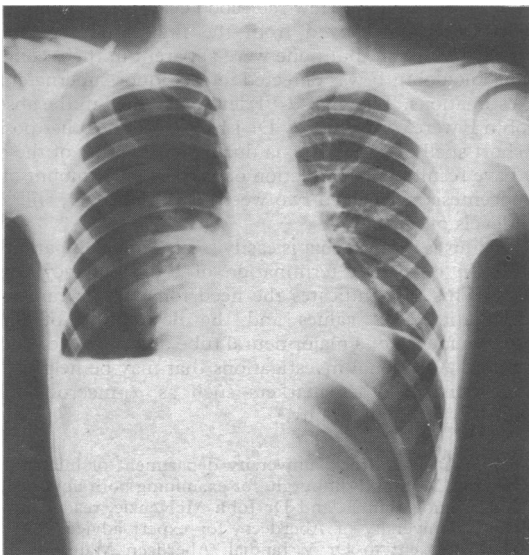
Case 1

A 9-year-old girl was admitted after being in a road traffic accident. On physical examination she was extremely dyspnoeic, there was bruising over the right side of chest and epigastrium, and her abdomen was slightly distended and tender. A chest x-ray picture showed an extensive right-sided haemopneumothorax (see figure), and straight films of the abdomen showed pronounced gastric dilatation with a fluid level. A nasogastric tube was passed and a large amount of gas, together with clear fluid, was aspirated. This resulted in a dramatic improvement in the patient's condition, her abdominal pain was relieved immediately, her respiratory rate fell, and her abdomen became soft and free from tenderness.

The haemopneumothorax was treated by the insertion of a drain through the second intercostal space. During the next 36 hours the patient had recurrent episodes of gastric dilatation as evidenced by a tender, distended, and hyperresonant abdomen. This settled after a further 48 hours' nasogastric suction. Her progress thereafter was uneventful.

Case 2

An 8-year-old boy was admitted after he had been knocked down by a car. On admission he was extremely restless. Abdominal examination showed generalised tenderness and guarding. Plain x-ray examination of the abdomen showed gross gastric dilatation (similar to that shown in the figure). A nasogastric tube was passed, and this relieved his abdominal discomfort immediately. As there was still doubt about the possibility of an intra-abdominal injury, an exploratory laparotomy was carried out. At operation no abnormality was found. In the immediate postoperative period he continued to complain of abdominal discomfort, which was relieved by nasogastric suction. He went on to make an uneventful recovery.



Case 1. Chest x-ray picture showing right-sided haemopneumothorax.

Discussion

In these two cases the clinical features initially suggested the possibility of a major intra-abdominal injury likely to warrant urgent laparotomy. In the first case the extreme dyspnoea and acute distress caused by the gastric dilatation was very impressive. Equally impressive was the immediate relief provided by nasogastric suction, and this despite the concomitant presence of a haemopneumothorax with complete collapse of the right lung.

Although the precise cause of acute gastric dilatation is not known,

certain contributory factors—neurogenic, postanaesthetic, postoperative and nutritional—have been incriminated.^{2,5} In blunt abdominal trauma it is possible that a compression of force on the coeliac ganglion might cause reflex vagal inhibition.

The diagnosis should be borne in mind in cases of blunt abdominal injury in which the abdomen is distended and hyper-resonant. Plain x-ray examination of the abdomen confirms the diagnosis. Decompression should be carried out by continuous nasogastric suction for 24-36 hours. If there is no intra-abdominal injury the abdomen immediately becomes soft and the patient's distress is relieved.

We thank Mr W A T Robb for his help in preparing this manuscript.

¹ Starr, K W, *Annals of the Royal College of Surgeons of England*, 1953, **12**, 71.

² *British Medical Journal*, 1970, **4**, 128.

³ Jones, P F, *Emergency Abdominal Surgery*. p 44. Oxford, Blackwell Scientific Publications, 1973.

⁴ Bailey, H, and Love, M, *A Short Practice of Surgery*, 16th edn. London, Lewis, 1975.

⁵ Golby, M, *British Journal of Clinical Practice*, 1966, **20**, 584.

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Guide-wire technique for central vein cannulation

Since Aubaniac's¹ original description of infraclavicular subclavian puncture, several different approaches have evolved and a range of cannulation equipment is commercially available. None of the approaches or equipment are perfect for all conditions. Routine use of a floppy-ended guide wire provides a safe and simple technique for central vein cannulation using any of the commercially available cannula sets. It obviates the need for the cumbersome needle sheath.

Method

The materials used (in a sterile pack) were: gown, gloves, drapes, and swabs; and re-sterilisable guide wire, USCI, C R BARD catalogue number 9225-S, diameter 1 mm, length 70 cm.

The foot of the bed must be raised to engorge the neck veins. Any standard approach²⁻⁴ may be used to puncture the subclavian or jugular vein, with either a 14- or a 16-gauge needle. A small stab wound must be made in the skin first and adequate draping is important. Once the needle is in the vein, the bevel is directed towards the heart. The syringe is removed and venous blood should flow out. The floppy end of the guide wire is advanced down the needle and should meet no resistance. It is inserted about 20 cm and then the needle is removed completely.

A plastic or Teflon cannula is then passed over the guide wire, twisted slightly through the deep cervical fascia and then on into the central vein. The guide wire is then completely removed, and, after a tap has been put on the end, the cannula is sutured to the skin.

The technique may be easily modified for tunnelling of the cannula under the skin and for the insertion of wide-bore Silastic cannulae. The guide wire may also be used to change cannulae at the same site.

Discussion

Guide wires have been used in cardiological and radiological procedures for over 20 years; the original description was attributed to Seldinger.

I have now used the guide-wire technique in over 100 central vein cannulations. This technique has two major advantages. Firstly, it provides greater reliability in placing the cannula in the superior vena cava. This is presumably because the floppy end of the guide wire tends to be carried by the blood stream, whereas the more rigid cannula, on its own, sticks at corners and hence tends to be pushed in the wrong direction. The second advantage is the absence of the needle and sheath and the ease of subsequent nursing care. Ellis and Fielding,⁵ in their review of the commercially available cannulation sets, found that although those with the rigid needle were the easiest to insert, the presence of the needle on the cannula necessitated a protective but cumbersome sheath. This tended to